

@1984
P.J. Donnelly

PIRATE TREASURE

With the untimely demise of Timex Computer Corporation, many TS 2068 owners and potential buyers will become increasingly concerned with the need for a way to make backup copies of their cassette software. Your own software and many of the better commercial endeavors (e.g., Thomas B. Wood's PRO/FILE) can be duplicated using the SAVE command. But, many commercial programs are copy protected in some way and this makes backing up the program a tedious "treasure hunt" at best, as typical programs will include BASIC, several areas storing MC bytes, and perhaps even the display file. All those areas must be found and copied to tape, in the proper sequence, before a software backup can be made. Commercially available autostop programs for the 2068 are not in wide supply as yet, either.

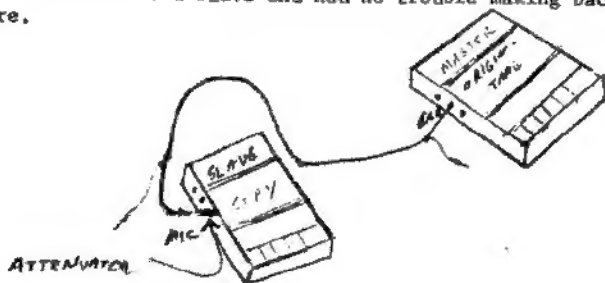
A simpler solution, and one which doesn't even tie up your 2068 in the process, is to use a hardware tape duplicator. On the TS 1000, G. Russell Electronics "Winky Board" series does yeomans work and will duplicate any cassette I know of. A similar device for the 2068 is in the works, but in the meantime (and perhaps forever), you can do a creditable job of tape copying with a \$2.00 attenuator.

Radio Shack's 274-301 Attenuator lists for \$1.99. It attenuates the line level signal from a tape recorder "ear", on output, jack (typically 5Vpp into 8 ohms) by 50dB, bringing it down to the range expected by a second machine's "MIC" input (about 5 millivolts pp at 600 to 1000 ohms).

The hookup is simplicity itself. First, set up one tape recorder at the proper loading level and test LOAD a program into the 2068. Volume setting is typically 7.5 on a 0 to 10 scale. Rewind the original tape, now follow figure 1 and plug one of your 1/8" mini plug cables into the Master recorder's (#1) ear jack. The other end will need to be plugged into a female 1/8" socket on the attenuator. The other end of the attenuator (247-301), which is molded in red plastic to distinguish it from a simple adapter, goes to the MIC input of your second recorder. (#2)

Place a new, good quality (\$1.00 or more) cassette into the slave recorder, press play and record and let the tape run for a few seconds. This assures an adequate leader. Now, with the original tape already rewound, press "play" on the Master recorder. You can't "see" the loading or hear it as on the professional Winky Board, but should have no trouble in figuring out when the duplicating process is complete. Most commercial cassettes, as an economy measure, contain little more tape than is actually required by the program. So, when the Master machine stops, rewind them both.

It's a good idea after your first attempt at duplication, to LOAD the copy into your 2068. The system is very forgiving, but if it fails, try raising or lowering the volume, about one notch at a time. I used Panasonic RQ 2107 recorders as both master and slave and had no trouble making backup copies of my software.



LIST GROUP

P.O. BOX 438
CENTERPORT, N.Y. 11721-0438

Recording Adapter
Half Price
99¢
1/8" jack to plug 51dB or
Record from earphone
jack to mike input.
274-301 Sale 99¢

COST: \$10.95

Trevor Toms "Pocket Book" is a handy little compilation of hints and tips for programming your ZX81 - TS/1000. It is 128 pages long and is divided up into 9 easy-to follow chapters. There are practically no typos, which I thought quite unusual until I learned that Mr. Toms used a Panasonic JD800 with Wordstar to compose the text.

As with most other texts of this type, it is assumed you have already read the originally supplied BASIC Manual. The first few chapters begin by presenting in intermediate programming techniques, string searches and handling, efficient programming (conserving memory or increasing speed), "Big" characters, decimal justification and miscellaneous tips. Many of these are quite valuable to readers with the unexpanded ZX/TS computer and most are reasonable well explained. Mr. Toms does tend to carry variables around outside his subroutine listings which is somewhat annoying, but is, after all, the way the computer does it. His "Big" characters program could use somewhat more explanation, but does show two very interesting ways to address the problem. An example of the valuable little tips is the following short program line:

200 PAUSE 454

Which can be pronounced "pause Four-ee-Four" and means just that; as 40000 is greater than 32,767 and the computer will wait for a keystroke, "forever".

In chapter 7 we address machine code. Mr. Toms demonstrates the use of REM statements, arrays and the area above RAMTOP for storing machine code. A valuable list of the advantages and disadvantages of each storage area is provided. Of particular interest is his use of "relative" jumps using lines like:

```
120 GOTO USR X+200
```

There is an excellent opportunity for implementing READ, DATA and RESTORE through the use this technique, coupled with string slicing, simply by putting your DATA values in REM statements.

A "rather deluxe" monitor is provided. Actually I found it rather "basic". A variable loader program is supplied and this is fairly efficient; but Mr. Toms assumes that his readers know how to change one variable in a list of subscripted variables without rerunning the entire program. I have found this not to be the case with many users.

```

1000 LET SX=127: LET SY=87
1010 FOR I=1 TO 100
1020 LET X=INT (RND*127)
1030 LET Y=INT (RND*83)
1040 LET Z=INT (RND*43)
1050 IF ((INT (RND*31)>1) TH
EN LET X=(X*-1))
1060 IF ((INT (RND*31)>1) THEN LET
Y=-1*Y)
1070 LET X1=SX-X
1080 LET Y1=SY+Y
1090 IF X1>=255 OR X1<=0 THEN
GO TO 100
1100 IF Y1>=173 OR Y1<=0 THEN
GO TO 100
1110 IF ((X1+Z)>=255 OR (X1-2)<
0 OR (Y1+Z)>=173 OR (Y1+Z)<=0)
THEN GO TO 100
1120 DRAW X1,Y1
1130 LET SX=X1: LET SY=Y1
1140 NEXT I
1150

```

There is a comprehensive look at 'adventure' games in the last two chapters which I highly recommend to any serious D & D fans.

I only paid 1/2 price for my copy of the "Pocket Book" and felt it a good bargain at that price. Some other minor faux pas which contributed to downgrading the books value; benchmarks are promised for run times and not given, and 50 cycle references are not corrected to 60 cycles in his clock program.

Overall, I thought the book worth more than I paid for it, but perhaps not worth the list price.

Table 3
JOYSTICK CONNECTOR SIGNAL ASSIGNMENT

PINS	SIGNAL NAME	FUNCTION
1	DIR1	Direction One (active low).
2	DIR2	Direction Two (active low).
3	DIR3	Direction Three (active low).
4	DIR4	Direction Four (active low).
5	-	Not used.
6	BUTTON	Button input (active low).
7	5V	+5 VOLTS
8	RSTB	Read strobe.
9	-	Not used.

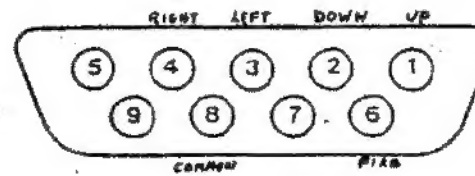
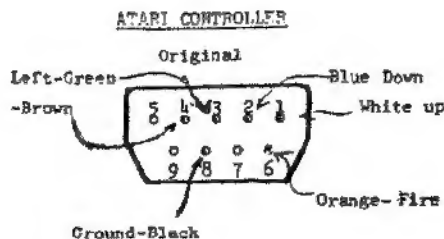


Figure 3 JOYSTICK CONNECTOR

JOYSTICK CONNECTORS

The T/S 2000 has the built-in capability to use two eight-position joysticks. These joysticks are industry-standard. The connectors are industry-standard 9-pin "D" type connectors. The layout of the connector, and the function of each pin is given below in Table 3 and Figure 3.



Only 8 has contacts

Fig 1(a)

Uses Quik
Connect Terminals
For Edge Connectors

Original Circuit Pattern

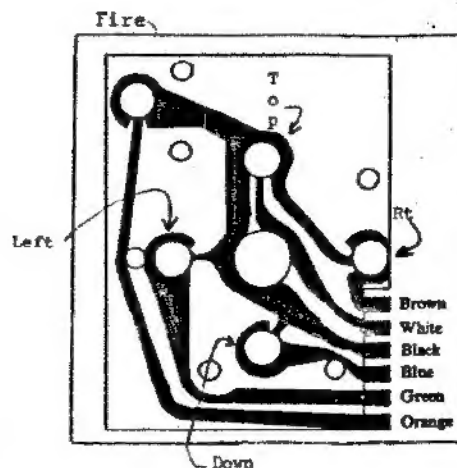


Fig. 1(b)

ITEM: Centronics 101 Printer (Refurbished)
 FOR: Any Size System; Interface Required
 TYPE/SPEED: Dot Matrix/120 CPS
 FROM: A.C.E. Systems
 106 E. Broad Street
 Bethlehem, Pa 18018
 PRICE: \$199 plus Freight

L.I.S.T. Group

What kind of printer could be more "Centronics Compatible" than a Centronics printer, I thought, when I saw A.C.E. System's ad. A.C.E. promises a refurbished unit with a 90 day limited warranty. The warranty and price, combined with my almost unlimited access to used, 11 to 14" wide computer paper (the back sides are good too!) convinced me to take the plunge and buy the 101.

The Centronics 101 has been around for about 10 years and has been used by many corporations as a heavy duty, medium to high-speed printer for their mainframes (there were no micros 10 years ago). These workhorse units have a shipping weight of almost 150 lbs and are built of rugged, industrial grade components. While billed as 9 X 7 dot matrix printers, the basic 101 effectively yields only a good quality 5 X 7 pattern.

A.C.E. Systems obtains the printer on the used peripherals market and brings them back to operating condition. A Xerox copy of Centronics' 13 page operating manual and a 1 page pinout diagram for printer port wiring is the only documentation supplied. I found that sufficient to get the unit up and running, but certainly would have liked to have at least the troubleshooting sections of Centronics maintenance manual, as well, to tide me over when the 90 day warranty is up.

I used Ener-Z's Report Generator board as my "Centronics" interface. That board doesn't directly support the graphic characters and is thus a reasonable match for the basic 101, which lacks dot-addressable graphics. A lower case option, at \$150, is available, but priced too high for my needs. In addition to an interface, you'll need connectors and ribbon cable. While 11 (eleven) conductors* is all you need to talk to most printers, I recommend you use 20 pin dual headers and 20 conductor cable. Keep the cable under 10' in length and use the odd conductors to provide "dead" and grounded lines between the "live" ones. For a terminator at the printer end, a simple Radio Shack 44 position experimenters edge card can be used to terminate your cable and plug directly into the J4 slot on the printer.

My second Centronics 101 has been clicking (and clacking) along nicely for weeks now and produces good quality listings on almost any size tractor feed paper. I say second printer because it highlights the good and bad points of buying the refurbished 101. On the negative side, as it weighs 150 lbs and is quite large (about 16" hi X 30" wide X 28" deep) the unit must be shipped by truck. This requires special packing (\$30) and a delivery charge of at least \$30, bringing your total cash outlay, including a \$10 test board, which I recommend you buy, to more like \$275 to \$300. Worse still, if you do have to return it, even for warranty work, you'll have to pay the shipping charge again if you buy by mail order. If you live within driving distance of Bethlehem, Pa. of course, you can pick up the unit and save the freight. I had a problem with the first unit I received, an undetected hairline crack in one of the main P.C. Boards, and had to return it for another.

When I told A.C.E. of my problem I discovered the best feature of this refurbished machine - they stand behind their warranty. A.C.E. personnel were exceptionally courteous, concerned and helpful and replaced my original unit quickly. They will also repair out of warranty units at \$20/hr., which is a reasonable figure.

L.I.S.T. Group

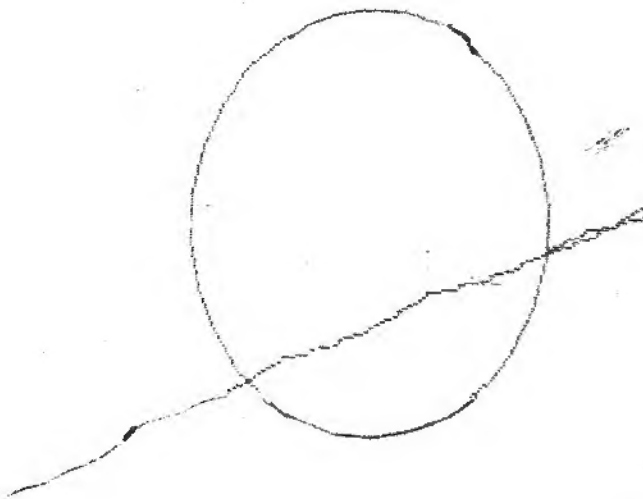
LONG ISLAND
SINCLAIR TIMEX
GROUP

On the whole, I'm pleased with the 101 and rate it a possible 9 out of 10 on of cost for value (only time will tell) and a reasonably good choice for most printer applications. And besides, it seems somehow quite proper for my little 12 oz. ZX81 to be driving a 150 lb behemoth of a printer.

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P.J. Donnelly

Q: When is a circle not a circle?



A: When it's printed on a TIMEX printer

Timex Sinclair Users Group Mid High Chapter

PROGRAMMING TIP FOR OCTOBER:

Do you have a Program that Auto runs and is in machine code so you can't BREAK it? Here's a way to stop Auto-run. In the immediate mode type this:
SAVE CHR\$USR 832 "name"
This will first LOAD the named Program and then immediately start to SAVE. Press BREAK at that point. This stops the SAVE and allows you to see how the Program gets into machine code. Here is how it works: USR 832 calls the ROM LOAD subroutine and the two quotes hold the Program name. You can also type "" with no Program name. After Loading the USR call RETURNS to BASIC to finish the line, evaluating to zero. CHR\$ changes the zero into a string. The line then reads:

SAVE " " [CHR\$ of 0 is a space] and the computer SAVES the Program.

Thanks to SYNTAX for this Programming tip.



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- 132 Columns Expanded Print & Multiline Highlighting
- 8 x 7 Matrix with "End of Line" Seeking Carriage Return
- Commercial Quality Heavy Duty Steel Construction
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- IBM PC, French Acc. Display Start, T100, Commodore 64, etc. and more
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